

Implement the Gale-Shapley proposal algorithm in C++. The input file is the male preference matrix followed by an empty line and the female preference matrix. The i -th row of the output file is the female matched to the i -th male. Verify your code on the given example input file. Run your code on the input files found on the course web site. Turn in your code and your output files.

Example input file:

```
1 0 2
0 1 2
0 1 2
```

```
1 2 0
0 1 2
2 0 1
```

Example output file:

```
1
0
2
```

Notes:

- Numbering always starts with 0.
- If M is the male preference matrix then $m_{i,j}$ contains the j -th choice of the i -th male. In the example above the 0-th male prefers female 1 followed by female 0 followed by female 2. The female preference matrix F is defined similarly.

- It is helpful to create a female score matrix \tilde{F} such that $\tilde{f}_{i,j}$ contains the score of the j -th male according to female i . In the example above the female score matrix is:

```
2 0 1
0 1 2
1 2 0
```

Note that a lower score is better than a larger score. This matrix helps the females to find their best proposals.

- Use the readmatrix library to read in the preference matrices.
- Verify that the preference matrices have the same size.
- You can erase the k -th element of a vector v by `v.erase(v.begin()+k);`.
- Comment your code extensively. Almost every line should have a comment. After every variable give a description of the variable in a comment.
- Indent your source code to show the logical structure of the program.